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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,424	08/20/2003	Steve R. Jones	NORTH-506A	6971

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EXAMINER

MATZEK, MATTHEW D

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/644,424

Applicant(s)

JONES, STEVE R.

Examiner

Matthew D. Matzek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 20-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/11/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-19, drawn to a structure comprising a first and second layer with a zip-pin embedded therein, classified in class 428, subclass 223.
- II. Claims 20-24, drawn to a method of delamination of said structure, classified in class 156, subclass 73.2.

The inventions are distinct, each from the other because of the following reasons:

1. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the first and second layers may be formed around the plurality of z-pins, rather than embedding the z-pins in the layers.
2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Bruce Brunda on 4/1/2005 a provisional election was made without traverse to prosecute the invention of the structure, claims 1-19. Affirmation

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of this election must be made by applicant in replying to this Office action. Claims 20-24 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-12, and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. The instant, independent claim 1 recites “a pull out force with respect to the first layer less than the pull out force with respect to the second layer”, but fail to set forth what provides for said properties.
7. Instant claim 13 recites “the first layer defines a first layer strength and the second layer defines a second layer stronger than the first layer strength”, “a nub embedded within the first layer defines a pull out force as a function of the number of flanges”, “the nub unitary with the second layer defines a pull out force as a function of the second layer strength”, “sufficient number of flanges such that the pull out force of the nub embedded within the first layer is less than the pull out force of the nub for directing a failure mode of the structure to the first layer”, but fail to set forth what provides for said properties.
8. Ex parte Slob, 157 USPQ states the following with regard to an article claimed by defining property values:

Claims merely setting forth physical characteristics desired in article, and not setting forth specific compositions, which would meet such characteristics, are invalid as vague, indefinite, and functional since they

cover any conceivable combination of ingredients either presently existing or which might be discovered in future and which would impart desired characteristics, thus, expression "a liquefiable substance having a liquification temperature from 40°C to about 300°C and being compatible with the ingredients in the powdered detergent composition" is too broad and indefinite since it purports to cover everything which will perform the desired functions regardless of its composition, and in effect, recites compositions by what it is desired that they do rather than what they are; expression also is too broad since it appears to read upon materials that could not possibly be used to accomplish purposes intended.

Double Patenting

9. Claims 1-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 7-9 of U.S. Patent No. 6,514,593. Although the conflicting claims are not identical, they are not patentably distinct from each other because '593 teaches the interlocking of at least two composite material layers to each other via the same z-pin as disclosed in the instant application, but does not provide explicit detail of said composite material layers.

10. Instant claims 1, 3-5, 8 and 12-18 are rejected as claim 1 of '593 recites a pin for z-pinning at least two composite material layers having a first and second circular end and a central portion extending between the first and second ends defining at least two radially extending flange sections which are each of a diameter exceeding the larger of the first and second diameters. The applied patent is silent as to the material composition of the two composite layers and the depth at which the pin is to be embedded, but it would have been obvious to one of ordinary skill in the art to have selected one of the disclosed compositions for the first and second composite layers as those instantly recited by Applicant are well known in the aerospace/automotive industries and optimized the location (depth) of the z-pin.

11. Instant claims 2 and 14 are rejected as claims 7-9 of '593 provide materials with higher melting temperatures than that of the two composite layers.

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12. Instant claims 6 and 7 are rejected as claim 3 of '593 recites the central portion of the pin defines three flange sections.

13. Instant claims 9 and 10 are rejected as claims 7-9 of '593 provide materials with lower density and hardness than those of the first and second layers.

14. Instant claims 11 and 19 are rejected as claims 7-9 of '593 provide materials which allow for the z-pin to have an equivalent coefficient of thermal expansion to that of the two composite layers.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Childress (US Patent 5,736, 222) in view of Jones et al. (US Patent 6,514,593).

16. Childress discloses a pin reinforced sandwich structure tying multiple sheets together (Abstract). The z-pins may be made of any suitable rigid material, e.g. stainless steel, titanium, copper, graphite, epoxy, composite, glass, carbon, etc. (col. 4, lines 62-65). The z-pins may be barbed to increase their holding strength in the sheets (col. 4, lines 65-67). The sheets may be made of plastic such as epoxy, bismaleimide, polyimide, phenolic and may be reinforced with glass, graphite, aramide, or ceramic fibers. Childress discloses that virtually any thermoplastic or thermoset resin may be used in the disclosed invention (col. 5, lines 13-16). In between the

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sheets of the applied invention are foam cores (col. 3, lines 48-50). Childress is silent as to the use of z-pins having a central portion with at least two radially extending flange sections.

17. Jones et al. disclose a pin for z-pinning at least two composite material layers to each other which comprises generally circular first and second ends of first and second diameters, respectively (Abstract). Extending between the first and second ends is a central portion defining at least two radially extending flange sections, which are each at a diameter exceeding the larger of the first and second diameters (Abstract). Figure 3 teaches the use of a three-flanged z-pin holding two composite material layers.

18. It would have been obvious to one of ordinary skill in the art to have made the z-pinned composite of Childress with the z-pins of Jones et al. The skilled artisan would have been motivated by the desire to use the z-pin of Jones et al. because a z-pin with "uniform diameter does not facilitate the mechanical lock or retention between the joined panels or layers" ('593 col. 4, lines 29-32).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew D. Matzek whose telephone number is (571) 272-2423. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mdm

MDM

Elizabeth M. Cole
ELIZABETH M. COLE
PRIMARY EXAMINER